



**2004 Federal Update to the
Regional Transportation Plan/
2004-07 Metropolitan
Transportation Improvement
Program**

Air Quality Conformity Determination

**February 12, 2004
Revised February 27,
2004**



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Note: The February 27, 2004 revisions are based on Metro responses to comments received from the Oregon Department of Environmental Quality (DEQ) as noted in Appendix 10 to this document. The revisions are incorporated on pages 36 through 42.

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2004 Regional Transportation Plan and 2004-07 Metropolitan Transportation Improvement Program

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2004 Regional Transportation Plan and 2004-07 Metropolitan Transportation Improvement Program Conformity Determination

A. Introduction

Background

The federal Clean Air Act provides the main framework for national, state and local efforts to protect air quality. Under the Clean Air Act, the Environmental Protection Agency (EPA) is responsible for setting standards, known as national ambient air quality standards (NAAQS), for pollutants considered harmful to people and the environment. These standards are set at levels that are meant to protect the health of the most sensitive population groups, including the elderly, children and people with respiratory diseases. Air quality planning in this region is focused on meeting the NAAQS and deadlines set by the federal Environmental Protection Agency and state Department of Environmental Quality for meeting the standards. Further, the United States Department of Transportation has established regulations which make failure to conform with these standards result in a loss of transportation funding from state and federal sources.

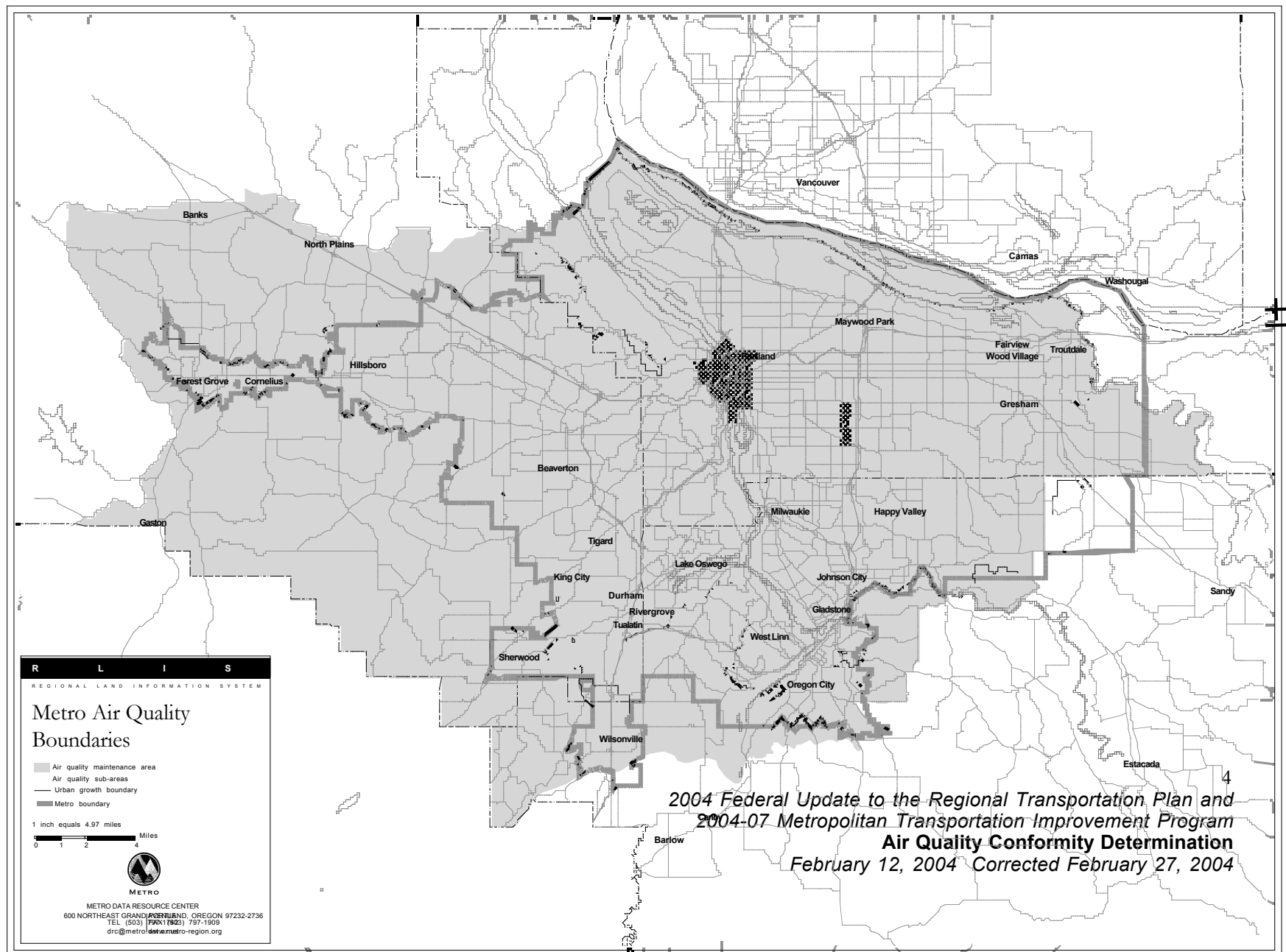
The 2004 Regional Transportation Plan (RTP) and 2004-07 Metropolitan Transportation Improvement Program are subject to an air quality conformity determination under federal regulation (40 CFR Parts 51 and 93) and state rule (OAR 340 Division 252). Metro, as the federally designated Metropolitan Planning Organization (MPO) for the Oregon portion of the Portland-Vancouver air shed, is the lead agency for the conformity determination. In addition, the Transportation Policy Alternatives Committee (TPAC) is called out under the state rule as the standing committee designated for "interagency consultation" as required by the rule. In order to demonstrate that the 2004 Regional Transportation Plan (RTP) and the 2004-07 MTIP meet federal and state air quality planning requirements, Metro must complete a technical analysis, consult with relevant agencies and provide for public comment that, in total, is known as air quality conformity. The need for this analysis came from the integration of requirements in the Clean Air Act Amendments of 1990 and the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. These requirements were also included in the Transportation Equity Act for the 21st Century (TEA21) in 1998. Conformity is a regulation requiring that all transportation plans and programs in air quality non-attainment or maintenance areas conform to the State's air quality plan, known as the State Implementation Plan (SIP). Transportation plans and programs such as the 2004 RTP and the 2004-07 MTIP must be found consistent with the SIP.

The Portland/Vancouver area has one interconnected airshed. However, given the State boundary along the Columbia River and the differing jurisdictions and state laws, the Federal government approved each side of the airshed taking responsibility for its area. For the Oregon side a Portland Area Airshed was established. However, as there are several types of pollutants of concern in the Portland Area, several geographic areas were established for differing air pollutants.

For Carbon monoxide, the Metro jurisdictional boundary was established as the geographic extent of concern for which emission budgets (maximum pollutant levels) were created. Within that area, there were sub-areas established with their own emission budgets. These sub-areas were the Portland Central City sub-area and the 82nd Avenue subarea.

For precursors of ozone, commonly called smog, geographic boundaries were set that pertained to the level of hydrocarbons (also known as volatile organic compounds) and nitrogen oxide. The Portland Air Quality Maintenance Area was established for addressing ozone and the emission budgets for this area.

The following map shows these boundaries.



Reason for Determination

Metro is the Portland area's designated Metropolitan Planning Organization (MPO). As the MPO, Metro is the lead agency for development of regional transportation plans and the scheduling of federal transportation funds in the Portland urban area. Regulations of the United States Department of Transportation (USDOT) require the MPO to develop a 20-year Regional Transportation Plan (RTP). The Plan must identify revenue that can be reasonably anticipated over a 20-year period for transportation purposes. It must also state the region's transportation goals and policies and identify the range of multi-modal transportation projects that are needed to implement them. Just as Metro is required to develop an RTP, it is also mandated to develop a Metropolitan Transportation Improvement Program (MTIP) for the Portland urban area. The MTIP "program" process is used to determine which projects included in the Plan will be given funding priority year by year.

The U.S. DOT, after consultation with the U.S. Environmental Protection Agency (EPA), approved and acknowledged the 2000 RTP air quality conformity determination on January 26, 2001. Under federal regulations, the RTP must be updated every three years to ensure that the plan adequately addresses future travel needs and is consistent with the federal Clean Air Act. As a result, an update to the 2000 RTP began in September 2003.

On June 19, 2003, the Joint Policy Advisory Committee on Transportation (JPACT) and the Metro Council approved Resolution No. 03-3335, approving a regional allocation of federal funds for the years 2006 and 2007, pending an air quality conformity analysis for the 2004-07 MTIP. The 2004-07 Metropolitan Transportation Improvement Program (MTIP) schedules spending of federal transportation funds in coordination with significant state and local funds in the Portland metropolitan region for the federal fiscal years 2004 through 2007. It also demonstrates how these projects relate to federal regulations regarding project eligibility, air quality impacts, environmental justice and public involvement.

On August 11, 2003 the U.S. DOT recommended that the 2004 RTP air quality conformity analysis and determination be completed jointly with the conformity analysis for the 2004-07 Metropolitan Transportation Improvement Program (MTIP).

On December 11, 2003, the Metro Council approved the 2004 Regional Transportation Plan (RTP) and the 2004-07 MTIP. In order to ensure that the 2004 RTP is in compliance with air quality requirements, this Conformity Determination has been prepared for the financially constrained system of the 2004 Regional Transportation Plan (RTP) which also includes projects identified in the 2004-07 MTIP.¹ It has been

¹ Defined in Appendix 1 to this document, the financially constrained system responds to federal planning requirements. This system of projects and programs is limited to current funding sources, and those new sources that can be reasonably expected to be available during the 20-year plan period. As the federally recognized system, the financially constrained system is also the source of transportation projects that may be funded through the Metropolitan Transportation Improvement Program (MTIP). The MTIP allocates federal funds in the region. The 2004 RTP not only provides an updated set of financially constrained projects and programs for future MTIP allocations, but also establishes more formal procedures and objectives for implementing long-range regional transportation policies through incremental funding decisions. These new MTIP provisions are set forth in Chapter 6 of the 2004 RTP.

prepared because the RTP and the MTIP must be conformed every three years, as described in OAR Chapter 340, Division 252, section 50. A new plan and MTIP demonstrating conformity with the Clean Air Act must approved and acknowledged by US DOT and US EPA in a formal conformity determination.

Section B of this conformity determination provides an overview of the 2004 RTP and major changes to road and transit network assumptions. The State Transportation Conformity Rule requires that the air quality conformity determination comply with several subsections of OAR Chapter 340, Division 252, including:

1. OAR 340-252-0110 – Use of the Latest Planning Assumptions
2. OAR 340-252-0120 – Use of Latest Emissions Model
3. OAR 340-252-0130 – Consultation
4. OAR 340-252-0140 – Timely Implementation of Transportation Control Measures (TCMs)
5. OAR 340-252-0190 – Motor Vehicle Emissions Budget

Section C discusses the relevant conformity determination requirements and demonstrates that this Determination complies with each requirement. Metro's technical analysis indicates that regional emissions will remain within established budgets in all analysis and budget years (i.e., 2006, 2007, 2010, 2015, 2020 and 2025). The following analysis demonstrates how the conformity determination for the 2004 Regional Transportation Plan complies with applicable requirements of OAR Chapter 340, Division 252. Inapplicable subsections of Division 252 are not cited in this conformity determination.

B. OVERVIEW OF THE 2004 RTP AND MAJOR CHANGES IN NETWORK ASSUMPTIONS

The 2004 RTP Update represents a minor update to the 2000 RTP that focuses on meeting state and federal requirements, and incorporated new policy direction set by JPACT and the Metro Council as part of various corridor and special studies conducted since 2000. The update also incorporates a number of "friendly amendments" proposed as part of local transportation plans being adopted over the past three years. This update builds on the extensive planning work and analysis that was completed for the 2000 RTP. The 2004 RTP continues to implement the 2040 Growth Concept, the region's long-range plan for addressing expected growth while preserving the region's livability. The 2004 RTP represents a nearly 20-year evolution from a mostly road-oriented plan to a more balanced multi-modal plan that is closely tied to land use and the 2040 Growth Concept. The 2004 plan remains relatively unchanged in terms of the mix of projects, and continues to rely on greater emphasis on a multi-modal transportation system that enhances opportunities for walking, bicycling and use of transit, transportation demand management, street connectivity, and a 2040-based level of service policy that tolerates some congestion, particularly during two-hour peak period in select locations based on availability of other modes of travel such as walking, biking and transit.

The total reasonably expected revenue base assumed in the 2004 RTP for the road system is about \$ 4.3 Billion with about \$2.16 Billion for freeways, highways and roads, \$1.67 Billion for transit and the balance for planning, bike, pedestrian, TDM and other similar programs.

The following section summarizes some of the more important similarities and distinctions between the two networks.

1. Network Assumptions Carried Over the from 2000 RTP:

- ❖ Annual average transit service increase of 1.5 percent through 2006;
- ❖ LRT extended along Interstate Avenue LRT alignment from the Rose Quarter to the Expo Center (though the opening day for Interstate MAX has changed from September 2004 to May 2004);
- ❖ LRT extended from Gateway Regional Center to Clackamas Regional Center and LRT extended along the Portland Transit Mall from the Steel Bridge to PSU along 5th and 6th Avenues.
- ❖ Early implementation of an interim "Rapid Bus" system in the 99E corridor on McLoughlin from downtown Portland to Milwaukie.
- ❖ Wilsonville/Beaverton Commuter Rail;
- ❖ Added freeway lanes:
 - I-5 from Greeley to Interstate Bridge;
 - US 26 from Highway 217 to Murray Boulevard;
 - Highway 217 from Tualatin Valley Highway to 72nd Avenue Interchange.
- ❖ Signal system interconnection on significant regional arterial streets.
- ❖ Implementation of the central city streetcar from NW Portland to the Macadam district in two phases.
- ❖ Improved bus headways and occupancy on numerous priority routes due to implementation of amenities and structural improvements (e.g., "coach-style" buses, dedicated transit lanes, queue jump lanes, signal priority systems, "real-time" on-street bus arrival information displays, etc.)
- ❖ Slightly reduced geographic coverage of bus service to emphasize service on the most productive routes;
- ❖ Phase 1 construction of the Sunrise Highway from I-205 to Rock Creek;
- ❖ Hogan Interchange construction at I-84 to Stark Street.
- ❖ Construction of 34 additional arterial lane miles and 108 more freeway lane miles than assumed in the 1995 RTP (which froze road construction at 2015 levels).

2. New 2004 RTP Network Assumptions:

The 2004 RTP Network Assumptions for roads and transit may be found in Appendix 1 of this Determination.

The 2004 RTP builds on the policy direction established in the 2000 RTP, which was to use transportation investment as a means to implement and reinforce the region's land use goals, and more fully defines the methods and projects that will effect this purpose. Extensive interagency consultation was conducted to develop and refine the current financially constrained system project list. The resultant network continues to rely extensively on auto trip making 61.3 percent of daily trips are single-occupant auto trips in 2025 and therefore continues to reflect significant investment in maintenance and expansion of the region's freeway and street facilities.

However, a more refined multi-modal approach is also exhibited in the 2004 RTP's specification of precise pedestrian and bike system improvements, and the identification of "boulevard-design" locations where the intent is to retrofit designated streets for walking, biking and transit. The retrofits of major streets include wider sidewalks, safer street crossings, bike lanes and improved bus stops and shelters along streets that serve the central city, regional centers, town centers and other areas. The 2004 RTP congestion level of service standards reflect a policy that the associated impacts of wider, faster streets and freeways needed to achieve the traditional service level are too often accompanied by unacceptable impacts on costs, surrounding neighborhoods and alternative travel modes. Some funds previously dedicated to attempts to meet the traditional level of service standard have been freed up to pursue more balanced system investment that is more reliant on system and demand management, walking, bicycling and transit to meet regional trip demand. And as the comparative data above, and in Section C.1(b), below, suggest, this approach yields meaningful reductions of auto trip dependency.

C. Relevant Conformity Requirements and Findings of Compliance

1. Consistency with the Latest Planning Assumptions (OAR 340-252-0110).

a. **Requirement:** *The State Rule requires that Conformity Determinations be based "on the most recent planning assumptions" derived from Metro's approved "estimates of current and future population, employment, travel and congestion."*

Finding of compliance: The *quantitative* analysis (see Section C.6) employs the transportation system planning assumptions completed for the 2004 RTP, and population, employment and development assumptions that reflect Metro adoption of the Regional Framework Plan and its implementing ordinances. The 2000 base year reflects Metro's official estimates of population and employment calibrated to 2000 Census data. Metro has completed a population/employment projection for 2025. The 2025 population/employment projection, along with the 2000 base year using 2000 Census data are the foundation for all analysis years used in this Conformity Determination.

Travel and congestion forecasts in the analysis years of 2000, 2010 and 2025 are derived from the population/employment data using Metro's regional travel demand model and the EMME/2 transportation planning software. Within subroutines of the regional travel demand model, Metro calculates the transit/bike/walk mode split for calculated travel

demand based on a variety of factors, including trip distance, car per worker relationship, transit headways, total employment within one mile, intersection density and a zone-based mixed-use index of the ratio of total employment to total population (see Appendix 4). Both the population and employment estimates and the methodology employed by the EMME/2 model have been the subject of extensive interagency consultation and agreement (discussed further in Section C.3).

The resulting estimates of future year travel and motor vehicle congestion are then used with the outputs of the EPA approved MOBILE 5a-h emissions model to determine regional emissions. In all respects, the model outputs reflect input of the latest approved planning assumptions and estimates of population, employment, travel and congestion.

- b. **Requirement:** *The State Rule requires that changes in transit policies and ridership estimates assumed in the previous conformity determination must be discussed.*

Finding of compliance: Changes in transit policies and ridership estimates are discussed below for each type of transit service assumed in the 2004 RTP transit network: light rail, commuter rail, rapid bus, frequent bus, regional bus and community bus.

LRT Extension. The transit policies which guide modeled implementation of light rail transit (LRT) service in the South/North corridor are consistent with previous Conformity modeling of the Westside and Hillsboro LRT service starts. Bus resources providing downtown radial service are replaced with LRT service. Previous short-haul service between former radial trunk routes is reconfigured to support new LRT stations and surrounding neighborhoods. This represents continuation of *existing transit policy* and its extension to the expanded LRT system. The same principles are further extended to implementation of planned commuter rail in South Washington County.

Previous conformity determinations have reflected policy changes that call for the construction of the South Corridor LRT Project in two phases. The first phase to include I-205 LRT from Gateway Regional Center to Clackamas Regional Center and LRT on the downtown Portland Transit Mall by 2008. A second phase is assumed that would include LRT from downtown Portland to Milwaukie town center. A new assumption is more rapid implementation of the Interstate MAX from downtown Portland to the Expo Center to the Expo Center. LRT service extension from Expo Center to Vancouver, Washington continues to be assumed to be part of the Preferred System, but is now not included in the Financially Constrained RTP and is therefore not included in this conformity analysis although it was included in previous conformity determinations.

Commuter Rail. A previous Determination has assessed introduction of commuter rail into the regional transit service strategy. The 2004 RTP makes no changes to the assumptions previously modeled. Only one alignment and service parameter is identified: Wilsonville to

Beaverton in Washington County during the a.m. and p.m. peak periods with supporting park and ride facilities and a slight increase and realignment of supporting feeder bus service. If other alignments should be determined to be feasible, amendment of the regionally defined system would be needed.

Bus Transit. The 2004 RTP carries forward a hierarchy of regional bus transit service described in the 2000 RTP. From a modeling perspective, one of the most significant factors effecting transit ridership is transit service headways. The 2000 RTP identified four gradations of bus service: Rapid bus, Frequent bus, Regional bus and Community bus which are continued in the 2004 RTP. Rapid bus service would most closely emulate LRT in speed, frequency and comfort serving major transit routes with limited stops. Rapid bus service is characterized by some dedicated rights-of-way, signal preemption capability, 15-minute headways and high quality station and passenger amenities. Passenger amenities are concentrated at transit centers such as schedule information, ticket machines, bicycle parking and covered shelters. The 2004 RTP continues with an approach of deploying a limited number of Rapid bus lines in high demand commuter corridors.

Frequent bus service is characterized by 10-minute headways, wider geographic coverage, utilization of some dedicated right-of-way (e.g., queue jumps, dedicated turn lanes, etc.), signal preemption capabilities, and enhanced passenger amenities that include covered bus shelters, special lighting. Some overlap of Rapid and Frequent bus service is conceivable. However, bus stops (rather than stations) would characterize the frequent bus system and much more frequent stops would occur. The vehicles would be typical transit buses.

Regional bus service would represent the majority of planned regional bus service. Radial trunk service would be provided on major arterials. Stops would be located every two to three blocks, and amenities would be prioritized to high ridership locations. Headways would not be more than 15-minutes during regular operating hours. The 2004 RTP continues the 2000 RTP approach which assumed expansion of the system to provide not only central city radial service but also to interconnect emerging regional and town centers, main streets and corridors with the central city and with one another.

The Community transit network is an innovation of the 2000 RTP that grew from Tri-Met's Transit Choices for Livability program. In addition to local bus service to neighborhoods and employment areas, community bus service includes decentralization of some transit services to a multitude of community-based transit providers dedicated to providing localized, "shuttle-like" service to destinations within a very limited geography. Vehicle types are expected to vary from traditional buses to van-type shuttles and taxi and car-share programs. The service is focused on more accessibility, frequency along the route and coverage to a wide range of land use options rather than on speed between two points. Community bus service generally is designed to serve travel with one trip end occurring within the 2040 Growth Concept town centers, main streets, station communities and corridors.

Transit Ridership. The broadest measure of ridership assumptions is revenue hours. The previous network, used to conform the 2000 RTP, as amended, reflected changes to the

South/North alignment and timing. Also, it included introduction of Commuter Rail in Washington County.

The following data points highlight the practical effect of changed system configuration and funding assumed in the 2004 RTP relative to previous assumptions used in the 2000 RTP:

- ❖ Total projected revenue hours projected for the 2004 RTP is 6,639.
- ❖ The 2004 RTP projects Average Weekday (AWD) transit trips in 2025 is 520,248.
- ❖ The 2004 RTP projects that the percent of regional daily trips that are transit is 6.28 percent
- ❖ The 2004 RTP projects that, the percent of households and employment within 1/4-mile of transit service in 2025 to be 70.99 and 83.15 percent respectively
- ❖ AWD originating riders per revenue hour are 76.94.

- c. **Requirement:** *The State Conformity Regulations require that reasonable assumptions be used regarding transit service, and increases in fares and road and bridge tolls over time.*

Finding of compliance: There are no road or bridge tolls in place in the Portland metropolitan area, and none are assumed in the 2004 RTP or proposed in the MTIP. No decision to deploy such a project has been made and this Determination does not model evaluation of such a program. However, in the future some of the projects included in the Financially Constrained System Project List may include value pricing considered during individual project evaluation and alternative selection.

Auto operating costs are factored into the mode choice subroutines of the regional travel model. These costs are held constant to 1985 dollars. Parking costs for the Central City and for Tier 1 regional centers are based on the South/North DEIS parking costs developed from survey data to reflect parking control strategies. Parking factors for the remaining regional centers, station communities, town centers and mainstreets are scaled back by 50 percent from these costs. No parking factors are assumed for corridors, neighborhoods, employment areas, industrial areas, greenspaces and areas outside the urban growth boundary. The three-zone transit fare structure adopted in 1992 is held constant through 2025. User costs (for both automobile and transit) are assumed to keep pace with inflation and are calculated in 1985 dollars. Free transit areas are assumed for the central business and Lloyd districts and Tier 1 regional centers and within Wilsonville town center.

Service assumptions (i.e., transit vehicle headways) also affect trip assignment to transit.

The South Corridor LRT Project Locally Preferred Alternative has selected the I-205 LRT segment and the downtown Portland Transit Mall LRT segment as a first phase recommended for completion by 2007 and a downtown Portland to Milwaukie LRT segment as a second phase.

LRT along Interstate Avenue from the Rose Quarter to the Expo Center is ahead of schedule with startup now planned for May 2004. These service assumptions were previously modeled in the FY 02-05 Metropolitan Transportation Improvement Program (MTIP) Conformity Determination, approved January 20, 2000 and as amended August 14, 2003.

The 2000 RTP assumed a 1.5 percent annual service hour increase for regional bus service through 2006. The bulk of the increase was allocated to building a service base along the Interstate Avenue corridor. At 2007, these bus resources were assumed to be reallocated throughout the region and feeder service within the LRT Corridor was reinforced.

The 2004 RTP continues these early program assumptions. However, with added regional support in the FY 2002 – 2005 MTIP, earlier attention has been focused on building service in two of four newly identified priority rapid bus corridors: the Barbur/99W and McLoughlin corridors, which link downtown with southeast Washington County and west Clackamas County, respectively. Rather than general reallocation of the Interstate LRT service hours, service in these corridors will be expanded. In addition, the 2004 RTP (as did the 2000 RTP) extends the 1.5 percent increase through 2025. Finally, rapid bus service is extended to the McLoughlin Boulevard/Highway 224 corridor and on Division Street to Gresham regional center in east Multnomah County.

- d. **Requirement:** The State Conformity Regulations require that the latest existing information be used regarding the effectiveness of TCMs that have already been implemented. It must also be demonstrated that the Plan does not delay or impede the implementation of TCMs

The Portland area maintenance plans for ozone and carbon monoxide include TCMS that are identical, except as otherwise noted for section 2 of the non-funding based TCMs. Following are the TCM quoted verbatim (shown in *italics*) from the air quality maintenance plans and unless noted, are the same in each maintenance plan. Each section of the maintenance plan TCMs is followed by a description of actions taken by the region to comply:

"Non-funding based Transportation Control Measures

1. Metro 2040 Growth Concept

Metro's 2040 Growth Concept is included because it changes typical growth patterns to be less reliant on motor vehicle travel, thereby reducing motor vehicle emissions. Two elements of the land use plan (the Interim Measures and the Urban Growth Boundary) provide appropriate implementation mechanisms to meet FCAA enforceability requirements for control strategies."

Compliance Actions - Metro 2040 Growth Concept

Since its adoption in 1995, the Metro Growth Concept has continued to serve as a means of coordinating land use and transportation, emphasizing a compact urban form, mixed uses where high quality transit service is provided or planned, a balanced transportation system that serves the Growth Concept and providing for transportation choices. Both the Metro 2000 RTP and 2004 RTP use the transportation system to implement the 2040 Growth Concept. This includes using a 2040 land use hierarchy to guide transportation plans and MTIP criteria that direct transportation investment decisions with 2040 Growth Concept implementation in mind. The MTIP includes incentives for serving 2040 centers (mixed use areas) and reducing vehicle miles traveled. As a result, during the period 1990 to 2000, while total vehicle miles increased by 35 percent, TriMet ridership increased 49 percent. Further, from the local adoption of the air quality maintenance plan requirements (1996) to the year 2000 (the latest data available), vehicle miles per capita (vmt/c) decreased from 21.7 vmt/c (vmt/c) to 20 vmt/c - an 8% decrease.

"a. Metro Interim Land Use Measures relating to:

- *Requirements for Accommodation of Growth;*
- *Regional Parking Policy; and*
- *Retail in Employment and Industrial Areas.*

The text of the interim land-use measures is included in Appendix D1-17 (for Ozone, Appendix D2-10 for CO)."

Compliance Actions - Metro Interim Land Use Measures

In 1996, the Metro Council adopted the Urban Growth Management Functional Plan, which was a set of recommendations and requirements for the twenty-four cities and the urban portions of three counties for implementing the 2040 Growth Concept. These regulations are not interim measures, rather, they provide lasting measures to address land use/transportation coordination. The Functional Plan set targets for cities and counties within the region for new jobs and housing as a means of encouraging land use patterns that are supportive of transit, walking and biking as well as setting standards for street connectivity and reducing the amount of land devoted to surface parking. As of January 2003, the Metro Council concluded (See appendix 8, which includes Metro Resolution No. 03-3299, compliance tables and the Functional Plan recommendations and requirements) that 25 of the 27 jurisdictions complied with the minimum density

standards, all jurisdictions complied with land partitioning standards, all but one complied with accessory dwelling unit standards. The total residential capacity demonstrated by the local jurisdictions was 94 percent of the total envisioned by the targets, without counting the capacity of the City of Wilsonville or unincorporated Multnomah County. With Wilsonville, unincorporated Multnomah County targets met and including the total capacity of the City of Portland using its Comprehensive Plan, the total would be 99 percent of the total envisioned by the targets. The regional total for accommodating jobs was 107percent of the regional targets.

With regard to parking, all but one jurisdiction (the City of Durham with a population in the 2000 Census of 1,382 people, 1 percent of the 1,305,574 people within the Metro jurisdictional boundary and with very little non-residential land uses or vacant buildable land for non single family use) , had complied with reviewing parking space sizes and ratios and lowering the total amount of land devoted to surface parking.

Finally, for Title 4, Retail in Employment and Industrial Areas, every city or county with employment or industrially zoned lands complied. In addition, Metro is currently looking at further protection of encroachment on employment and industrial lands with additional regulations now being discussed by the Metro Council.

All of these land use measures were intended to encourage land use patterns which , in part, promoted a more balanced transportation system. In addition, Metro adopted a Title 6, which pertained to transportation accessibility and connectivity. While not included as a land use measure in the air quality maintenance plans, these regional requirements for local government implementation encouraged street systems that connected more frequently which, in turn, encourages walking, biking and transit use - all contributing to better air quality. All 27 jurisdictions complied with connectivity standards.

*"b **Urban Growth Boundary.***

The Urban Growth Boundary (UGB) as currently adopted or amended before EPA approval of the maintenance plan, assuming an amendment does not significantly affect the air quality plan's transportation emission projections."

Compliance Actions - Urban Growth Boundary

As noted above, the 2040 Growth Concept was envisioned to encourage a more compact urban form and to provide for land use patterns that encourage transportation choice. The urban growth boundary was not intended to be static. Since the late 1970s, the boundary has been moved about three dozen times. Most of those moves were small - 20 acres or less. There were two times that Metro authorized more substantial additions:

- in 1998 about 3,500 acres were added to make room for approximately 23,000 housing units and 14,000 jobs. Acreage included areas around the Dammasch state

hospital site near Wilsonville, the Pleasant Valley area in east Multnomah, the Sunnyside Road area in Clackamas County, and a parcel of land south of Tualatin.

- in 1999 another 380 acres were added based on the concept of "subregional need." An example of "subregional need" would occur when a community needed land to balance the number of homes with the number of jobs available in that area.

These expansions represented an increase of only about 2 percent, even though the Metro region's population has increased by about 17 percent since 1990.

In early 2002, the voters of the region approved Ballot Measure 26-29, which prohibits Metro from requiring higher densities within existing neighborhoods. Metro's goal is to locate higher density housing, such as townhouses and apartments, within "centers" such as the downtowns of Portland, Beaverton and Gresham, or along transportation corridors, particularly where there is a light-rail line.

Further, in 2002, the Metro Council completed a two-year process reviewing the region's capacity for housing and jobs by expanding the UGB by an additional 18,638 acres, with 2,851 acres dedicated to employment purposes. This expansion amounts to an 8 percent increase in the Metro urban growth boundary. However, the UGB expansion is sized to accommodate the next twenty years of growth. The new UGB, including the expansion will accommodate a 40 percent increase over the forecast period ².

As part of the 2002 UGB decision, the Metro Council adopted new policies that address the protection of existing neighborhoods and additional job land, and the improvement of downtown commercial centers and main streets. Accordingly, transportation and air quality modeling have assumed urban land use consistent with population, housing and job forecasts. In turn, transportation system improvements have also been assumed to serve the area. The air quality conformity determination results, demonstrate that even with these changes in land use and transportation system, the estimated future air quality results still meet state and federal air quality standards.

"2. **Central City Parking Requirements** (Carbon Monoxide only)

The Portland City Council adopted the Central City Transportation Management Plan, Plan and Policy, and other supporting documents on December 6, 1995. The Central City Transportation Management Plan (CCTMP) was adopted by Ordinance No. 169535, Resolution 35472. The Ordinance became effective January 8, 1996. A key supporting document was the Zoning Code Amendments, containing the maximum parking ratios for new development, the requirements for providing structured parking to serve older historic buildings and other regulations on parking. Key elements of the Zoning Code Amendments related to CO air quality projections are incorporated into this document as given below.

² Sources: Metro *Urban Growth Report*, Table 1, line 1a and *Metro Council Regional Forecast*, September, 2002 and 2000 US Census.

The CCTMP replaced the former Downtown Parking and Circulation Policy, first adopted in 1975 and updated in 1980 and 1985. The 1980 update of the parking policy served as a foundation for the 1982 Portland area CO attainment plan. The CCTMP is designed to minimize new vehicle traffic in the Central City and encourage alternative travel modes by extending the downtown maximum parking ratio concept to the entire Central City area. The CCTMP provided for the lifting of the downtown parking lid upon EPA approval of the maintenance plan and the request" for attainment redesignation. However, until EPA approval, the CCTMP retains the parking lid.

The parking offset program (OAR 340-020-0400 through OAR 340-020-0430), designed to allow the city to increase the parking lid by up to a maximum of 1,370 spaces, was also retained until after EPA approval of the maintenance plan. The DEQ's emission projection figures for the CCTMP emissions inventory area include an estimate for the emissions associated with 827 parking spaces, as documented in Appendix D2-4-4. These are the parking spaces yet to be developed, but which were authorized by the parking offset program.

The following is a list of zoning code amendments that were incorporated directly into the Portland Carbon Monoxide Maintenance Plan. The text of critical code provisions (such as maximum parking ratios for new development and parking provisions for existing buildings) is contained in Appendix D2-8. A list of other zoning code amendments used as supporting documents for the maintenance plan is contained in Appendix D2-13 of Volume 3 of the Oregon State Implementation Plan.

Items in Volume 3 of the SIP are federally enforceable. With regard to Volume 3 items, EPA has allowed DEQ to make changes which are merely administrative, without requiring public process. DEQ and EPA make a determination as to whether a proposed change by the City of Portland is merely administrative rather than substantive.

Section 1: *Incorporated Amendments to Chapter 33.510, Central City Plan District*

<u>Code Number</u>	<u>Code Title</u>
33.510.261 - 33.510.261.E (33.510.261.E.1.a(1)-(2),b,E.2.a(1)-(2),b)	Parking Site split by subdistrict or parking sector boundaries
33.510.263 - 33.510.263.A (33.510.263.A.1.a-c(1)-(4),A.2-4.a-b(1)-(3),A.5-7.a-d)	Parking in the Core Area Growth Parking
33.510.263.B - (33.510.263.B.1.a-c(1)-(2),B.2-4.a)	Preservation Parking
33.510.263.E - (33.510.263.E.1.a-b,E.3.a-c)	Residential/Hotel Parking
33.510.263.G -	All Parking
33.510.263.G.4 -	Surface parking lots.

(33.510.263. G .4.a. (1)-(2), G .4.d(1)-(3»)

33.510.264

Parking in Lloyd District

33.510.264.A

Growth Parking

(33.510.264.A.1.a-c(1)-(4),A.2.a,A.4.a)

33.510.264.B

Preservation Parking

33.510.264.B.1.a-c(1)-(2),B.2.a-c,B.4.a-c)

33.510.264.F

All Parking

33.510.264.F.4

Surface parking lots

(33.510.264.F .4.e.(1)-(3)

33.510.265

*Parking in the Goose Hollow Subdistrict
and Central Eastside Sectors 2 and 3*

33.510.265.A

Growth Parking

(33.510.265.A.1.a-c,A.2.a,A.4.a)

33.510.265.B

Preservation Parking

(33.510.265.B.1.a-c(1)-(4),B.2.a,b) (33.510.265.B.4.a-c)

Section 2: *Incorporated Portion of New Chapter 33.808, Central City Parking Review*

Code Number

Code Title

33.808.050

*Loss of Central City Parking Review
Status*

33.808.100

*General
Approval Criteria for Central City
Parking Review*

33.808.100.G

33.808.100.J

If the site is in the Core Area:

33.808.100.J.2.a

33.808.100.M

Section 3: *Incorporated Maps*

Section 4: *Incorporated Portion of CCTMP Administration Section*

VI.D.1.a.(1)-(5)

*Administration Section:
Preservation Parking*

Unless it is a substitution of a Transportation Control Measure producing equivalent emission reduction, any change in the Portland Metro Area CO Maintenance Plan language will require adoption of a formal amendment by the EQC and approval by EP A. The City of Portland may make changes to City policies and regulations which are included in the Portland Metro Area CO Maintenance Plan provided they do not relax the stringency of the air quality control strategies. DEQ will work with the City to notify EPA of such changes. These changes will be incorporated into the Portland Metro Area CO Maintenance Plan at a future convenient time.

Changes to documents supporting the Portland Metro Area CO Maintenance Plan' (zoning code amendments not directly incorporated into the Portland Metro Area CO Maintenance Plan, but listed in Appendix D2-13 of Volume 3 of the Oregon State Implementation Plan) which do not affect the stringency of the air quality control strategies will not require adoption of a formal amendment by the EQC and approval by EP A. DEQ and the City of Portland will review potential changes to the supporting documents to determine whether they affect the stringency of the air quality strategies. If it is determined that stringency will not be affected, DEQ will submit those changes to EPA for concurrence and administrative incorporation into the Portland Metro Area CO Maintenance Plan."

Compliance Actions - Central City Parking Requirements

As noted in the State Conformity Regulations, these regulations were adopted by the City of Portland in 1995 and became effective January 8, 1996. These parking regulations are still in force and remain a part of City regulations pertaining to the Central City.

2 *"DEQ Employee Commute Options Program (ozone only)*

A 10% trip reduction target is required for employers who employ more than 50 employees at the same work site. See discussion above and Appendix D1-13."

Compliance Actions - DEQ Employee Commute Options Program

The ECO rule (OAR 340-242-0100 through 0290), applies to employers in the Portland area with *more than 50 employees* reporting to a single work site. Affected employers must provide incentives for employee use of alternative commute options. The incentives must have the potential to reduce commute trips to the work site by ten percent within three years. Annual employee surveys measure progress toward this goal.

Popular programs include transit subsidies, carpool matching and preferential parking for carpools, compressed work weeks (4/10's for example), telecommuting, and bike/walk programs. Most companies offer a guaranteed ride home for personal emergencies for commuters.

Failure to comply with the ECO rule is a Class II environmental violation and carries penalties that typically range from \$500 - \$2,000 for each day of violation.

According to the 2002 ECO Rule Information Clearinghouse, the following ECO Rule facts were found:

Total number of ECO-affected employers in the Portland metro region = 1142
Total number of ECO-affected employers with baseline surveys = 936
Total number of ECO-affected employers with Trip Reduction Plans ~ 400
Total number ECO-affected employers performing Annual Follow-up Surveys ~ 704
Total number of ECO-affected employers who have met the 10 percent trip reduction target or other compliance option = 585
ECO is getting 86 percent of its trip reduction from its 319 largest employers (those with more than 150 employees).
Total annual VMT reduction: 49,542,360
Annual VMT reduction from employers with more than 200 employees: 42,548,613

According to the *2002 Regional Transportation Demand Management Program Evaluation Report*, the auto-trip reduction number translates to a reduction of 852,014 vehicle-miles traveled per workweek, which, in turn, leads to reduction in the following air pollutants:

Hydrocarbons 6,276 lbs.

Nitrogen oxides 3,233 lbs.

Carbon monoxide 48,496 lbs.

Carbon dioxide 852,014 lbs.

This DEQ required program is implemented by 1.7 FTE DEQ staff members and progress has been documented for the latest year for data (2002) as follows:

- Fielded approximately 750 phone calls with questions about all facets of the ECO program.
- Initiated approximately 250 phone calls and letters to employers informing them that they were subject to the rules or helping them catch up if they were behind in complying.
- Identified businesses that were unaware of the ECO requirements, but were subject to the ECO rules through informal and formal methods. Accomplished this by purchasing mailing lists, browsing periodicals like Oregon Business magazine and The Oregonian, contacting chambers of commerce, getting

lists from TriMet, or identifying employers while in the field.

- Compiled approximately 200 ECO employee survey reports.
- Developed and implemented postcard system to remind employers when annual ECO survey was due.
- Developed and maintained ECO website and posted new information including DEQ's Variable Work Hours Handbook, Parking Management Handbook, End-of-trip Facilities case studies and low cost promotional ideas.
- Provided technical assistance to employers using DEQ's survey software.
- Maintained and updated the ECO employer database.
- Directed employers to organizations that could provide more in-depth help with alternate commute modes like TriMet, C-TRAN, SMART, Flexcar, CarpoolMatchNW and area TMAs.
- Developed materials that assist employers in complying with ECO requirements. Specific to 2002 were:
 - A pollution spreadsheet to show employers the environmental impact of employee transportation choices. This spreadsheet shows pollution reductions (or increases) from one survey period to the next.
 - A new form to collect more in-depth information from worksites.
 - Purchased promotional, "give-away" items advertising ECO related messages to distribute at transportation fairs, environmental events and one-on-one meetings with employers.

Further, TriMet has an Employer Outreach Program that also targets the region's ECO affected workers (those with 50 or more employees) as well as providing assistance to employers with fewer than 50 employees. The December 2003 Three-Year Work Plan outlines methods how tools such as educational programs and training materials, individual consultations, presentations and employer/employee training sessions to promote use of public transportation, carpooling, telecommuting, bicycling, walking, vanpools, flexcar, compressed work week and flexible work hour options. As the work plan states: "During the 2001-2003 fiscal years, TriMet helped Portland area employers set up, or maintain, TDM programs that impacted 190,520 workers."

The TriMet Employer Outreach Three Year Work Plan demonstrates how a local agency is working to reach new employers and further raise the number of employers that meet the ECO rule.

The above documentation of results shows that 51 percent of all ECO-affected employers in the Portland Metro region in the year 2002 have complied with a 10 percent trip reduction target, while 82 percent of all ECO rule affected employers have taken the first step - completed a baseline survey and both DEQ and TriMet have programs to increase

participation. This 82 percent of employers represents a higher percentage of total employees, as the participating employers tend to be firms with 150 employees or more. Further, the air quality credit claimed for this TCM is that based on actual program performance as noted in tables 7 through 9, below. Accordingly, this TCM has been substantially implemented.

3. ***"DEQ Voluntary Parking Ratio Program (ozone only)"***

Implement a voluntary parking ratio program providing incentives to solicit participation, including exemption from the Employee Commute Options program. See discussion above and Appendix D1-14."

Compliance Actions - DEQ Voluntary Parking Ratio Program

In 1999, the DEQ eliminated this program. (In 1996, Metro adopted mandatory parking requirements, see Appendix 8)

"Funding based Transportation Control Measures"

1. ***Increased Transit Service***

a. *Regional increase in transit service hours averaging 1.5% annually."*

Compliance Actions - Regional Transit Service

Table 2 below displays the total region-wide annual service hours for light rail and bus vehicles by year since the adoption of the region's transportation control measures (1996).

Table 2
Region-wide Annual Transit Service Hours

Fiscal Year	Service Hours			Percent Change	
	Rail	Bus	Total	cumulative from 1996	year-to-year
1996	59,544	1,821,120	1,880,664	0.0%	
1997	59,748	1,819,320	1,879,068	-0.1%	-0.0%
1998	66,708	1,869,324	1,936,032	2.9%	3.0%
1999	130,236	1,938,048	2,068,284	9.9%	6.8%
2000	143,100	2,009,148	2,152,248	14.4%	4.0%
2001	144,672	2,032,944	2,177,616	15.7%	1.1%
2002	183,648	2,048,484	2,232,132	18.6%	2.5%
2003	192,500	2,049,100	2,241,600	19.1%	0.4%
Average					2.6%

TriMet has actually increased transit service by an average of 2.6 percent since adoption of this transportation control measure. This is more than 1 percent greater than the 1.5 percent average transit service increase required annually. Furthermore, a large percentage of the increase in vehicle service hours have been provided on light rail vehicles which have three to six times the passenger carrying capacity of a bus, depending on whether a one or two car train is operating.

This level of transit service increase was made possible by large increases in payroll tax revenues within the TriMet district due to a favorable economic climate. It is unlikely TriMet will be able to sustain this level of growth over a long period of time. Service and financial planners at TriMet have forecast modest growth in service hours through the MTIP years, however, that will easily exceed the commitment to averaging 1.5 percent annual growth. Recently acquired authority from the 2003 State Legislature to increase the payroll tax rate once the recession has ended will further enable TriMet to meet this goal.

"This commitment includes an average annual capacity increase in the Central City area equal to the regional capacity increase. The level of transit capacity increase is based on the regional employment growth projections adopted by Metro Council on Dec. 21, 1995. These projections assume that the Central City will maintain its current share of the regional employment. Should less employment growth occur in the Region and/or the Central City, transit service increase may be reduced proportionately."

Compliance Action - Central City Transit Service

The following table illustrates the transit service increase for those transit services that serve the downtown.

Table 3
Central City Annual Transit Hours

1996			2003			Average Annual Increase 1996-2003
Bus	LRT	Total	Bus	LRT	Total	
1,340,508	59,544	1,400,052	1,424,592	192,516	1,608,220	
						2%

Note: Service hours are totals for all bus and light rail lines that serve the downtown Portland Central City area. The Portland Streetcar is not included.

It should be noted that the TCM is expressed in the percentage change in total transit service hours. However, there is a very large difference between the amount of bus service increase and LRT service increase in the Central City. Between 1996 and 2003, bus service in the Central City increased by 6 percent. However, LRT service in the Central City increased by 320 percent. This is significant because the additional capacity provided by LRT service is much greater than that provided by buses. For example, a standard 40-foot bus has a capacity of (seated and standing) of 65 people, while a two-car light rail train can

carry 266 people (133 people per car.) What the data also do not reflect is the elimination of buslines in favor of LRT service.

A more accurate way to consider how transit service has improved in the Central City is to look at capacity as illustrated in Table 4.

Table 4
Transit Capacity in the Portland Central City

Mode	Seated Capacity			Total Capacity (seated and standing)		
	Fall 1996	Fall 2003	Annual Average % Increase	Fall 1996	Fall 2003	Annual Average % Increase
Bus	1,172,354	1,214,256		1,830,016	1,895,494	
Rail	163,328	486,524		423,632	1,261,922	
Total	1,335,682	1,700,780	3.9%	2,253,648	3,157,346	5.7%

Accordingly, viewed from both a transit service hour and total capacity standpoint, the increase in transit in the Central City more than exceeded the TCM of 1.5 percent increase for the Central City. Based on these data and the transit service hours increases, it is concluded that the region has complied with the Central City transit service TCM.

b. Completion of the Westside Light Rail Transit facility.

Compliance Action - Westside Light Rail Transit

Westside Light Rail was opened on September 12, 1998. Since the Westside MAX Blue Line opened five years ago, 43.4 million rides have been taken along the 18-mile segment. Ridership on Westside MAX now averages 28,400 weekday boardings. In 2000, ridership on the line had already exceeded 2008 projections.

c. Completion of Light Rail Transit (LRT) in the South/North corridor by the year 2007.

Compliance Actions - South/North LRT

Interstate MAX, the 5.8 mile northern segment of this project is under construction and is scheduled to be in operation May 1, 2004. The southern portion of this project is planned in two phases - Phase 1 is an extension from Gateway regional center to the Clackamas regional Center, Phase 2 an extension from downtown Portland to Milwaukie. Phase 1 is tentatively scheduled for completion by 2008. Phase 2 would follow thereafter.

2 **Bicycle and Pedestrian Facilities**

a. *Multimodal facilities.*

Consistent with ORS 366.514³, all major roadway expansion or reconstruction projects on an arterial or major collector shall include pedestrian and bicycle improvements where such facilities do not currently exist. Pedestrian improvements are defined as sidewalks on both sides of the street. Bicycle improvements are defined as bikeways within the Metro boundary and shoulders outside the Metro boundary but within the Air Quality Maintenance Area.

Compliance Actions - Multi-Modal Facilities

As noted in the TCM, it is State law that all major roadway expansion or reconstruction projects on an arterial or major collector shall include pedestrian and bicycle improvements where such facilities do not currently exist. Accordingly, agencies seeking funding of transportation projects have designed and built projects to comply with this requirement.

b. *RTP Constrained Bicycle System.*

In addition to the multimodal facilities commitment, the region will add at least a total of 28 miles of bicycle lanes, shoulder bikeways or multi-use trails to the Regional Bicycle System as defined in the Financially Constrained Network of Metro's Interim Federal RTP (adopted July 1995) by the year 2006. Reasonable progress toward implementation means a minimum of five miles of new bike lanes, shoulder bikeways or multi-use trails shall be funded in each two-year Transportation Improvement Program (TIP) funding cycle.

Bike lanes are striped lanes dedicated for bicycle travel on curbed streets, a width of five to six feet is preferred; four feet is acceptable in rare circumstances. Use by autos is prohibited. Shoulder bikeways are five to six foot shoulders for bicycle travel and emergency parking. Multi-use trails are eight to 12 foot paths separate from the roadway and open to non-motorized users.

Compliance Actions - Bicycle System

A data base of constructed bike lanes and related facilities should be completed for future conformity determinations. As a surrogate, a map comparing the bike system in 1999 and 2002 was prepared from the Metro *Bike There!* maps. The below map shows the 103 miles of new bike lanes and multi-purpose paths added during the period 1999 to 2002. That is, from a 1999 total of 519 miles, 103 miles of bikeway were added for a 2002 total of 622 miles. Of the current 622 miles of bikeways, 512 are bike lanes, defined as "striped portions of the roadway designated as a bicycle travel lane". The balance, 110 miles are regional multi-use paths defined as "physically separated from motor vehicle traffic, used by bicyclists,

³ This provides for the following exceptions:

- absence of any need;
- contrary to public safety; and
- excessively disproportionate cost.

projects. Therefore, the total of bike lanes and multi-use trails in the 2006-2007 MTIP is 8.3 miles, exceeding the five-mile minimum by 66 percent.

c. *Pedestrian facilities.*

In addition to the multimodal facilities commitment, the region will add at least a total of nine miles of major pedestrian upgrades in the following areas, as defined by Metro's Region 2040 Growth Concept: Central City/Regional Centers, Town Centers, Corridors & Station Communities, and Main Streets. Reasonable progress toward implementation means a minimum of one and a half miles of major pedestrian upgrades in these areas shall be funded in each two-year TIP funding cycle."

Compliance Finding - Pedestrian Facilities

New pedestrian projects awarded funding in the most recent Transportation Priorities process focused on improving the safety of pedestrian crossings at intersections. This includes the Central Eastside bridge heads project (which also includes access from Water Avenue to the Morrison Bridge) and the St. John's town center pedestrian improvements. The length of the improvements across intersections and the new Morrison Bridge access are approximately .4 miles in length. The Forest Grove town center pedestrian improvement project will be providing approximately 1.2 miles of new sidewalks in the 2006-07 biennium. This totals 1.6 miles, or about 7 percent over the 1.5 mile target for new pedestrian improvements. In addition, in the past over 9 miles of pedestrian facilities have been constructed. Accordingly, it is concluded that this TCM has been met.

2. Latest Emissions Model (OAR 340-252-0120)

- a. **Requirement:** *The State Conformity Regulations require that the conformity determination must be based on the most current emission estimation model available.*

Finding of compliance: Metro employed EPA's recommended Mobile 5a-h emissions estimation model in preparation of this conformity determination. Additionally, Metro uses EPA's recommended EMME/2 transportation planning software to estimate vehicle flows of individual roadway segments. These model elements are fully consistent with the methodologies specified in OAR 340-252-0120.

In addition, Metro has begun running the MOBILE6 model in order to begin familiarization with this new model in anticipation of its use in future conformity determinations.

3. Consultation (OAR 340-252-0130)

- a. **Requirement:** *The State Conformity Regulations require the MPO to consult with the state air quality agency, local transportation agencies, DOT and EPA regarding enumerated items. TPAC is specifically identified as the standing consultative body in OAR 340-225-0060(1)(b).*

Finding of compliance: Specific topics are identified in the Regulations that require consultation. TPAC is identified as the Standing Committee for Interagency Consultation. Most of the agencies defined as eligible to participate during interagency consultation for the Determination were participants in development of the 2004 RTP and the MTIP, (EPA and the Federal Transit Administration, whose closest offices are located in Seattle have not been able to participate at TPAC) including development of the financially constrained system, at both the region's technical and policy committee levels (TPAC and JPACT) during the development of the 2004 RTP. However, a special interagency meeting was convened on October 2, 2003, with all affected agencies, including EPA, FTA and FHWA as well as representatives of DEQ, TriMet and Metro participating in order to review an early draft of this document and discuss the conformity determination approach, schedule and assumptions prior to TPAC review..

- i. *Determination of which Minor Arterial and other transportation projects should be deemed "regionally significant."*

Metro models virtually all proposed enhancements of the regional transportation network proposed in the MTIP, the 2004 RTP and by local and state transportation agencies. This level of detail far exceeds the minimum criteria specified in both the State Rule and the Metropolitan Planning Regulations for determination of a regionally significant facility. This detail is provided to ensure the greatest possible accuracy of the region's transportation system predictive capability. The model captures improvements to all principal, major and minor arterial and most major collectors. Left turn pocket and continuous protection projects are also represented. Professional judgment is used to identify and exclude from the model those proposed intersection and signal modifications, and other miscellaneous proposed system modifications, (including bicycle system improvements) whose effects cannot be meaningfully represented in the model. The results of this consultation were used to construct the analysis year networks identified in Appendix 1 of this Determination.

- ii. *Determine which projects have undergone significant changes in design concept and scope since the regional emissions analysis was performed.*

All agencies defined as eligible to participate during interagency consultation for the Determination were participants in development of the 2004 RTP and 2004-07 MTIP and commented extensively on the Plan's preparation, including development of the 2004 RTP financially constrained system, at both the region's technical and policy committee levels (TPAC and JPACT).

- iii. *Analysis of projects otherwise exempt from regional analysis.*

All projects capable of being modeled have been included in the Conformity Analysis quantitative networks, regardless of funding source or "degree of significance", as reviewed by TPAC.

- iv. *Advancement of TCMs.*

All past and present TCMs have been implemented on schedule. There exist no obstacles to implementation to overcome. See C1(d) in this section., above.

- v. *PM10 Issues.*

The region is in attainment status for PM10 pollutants.

- vi. *forecasting vehicle miles traveled and any amendments thereto.*

The forecast of vehicle miles is the product of the modeled road and transit network defined in the financially constrained system, which was approved during extensive consultation with all concerned agencies including DEQ as part of TPAC and JPACT.

- vii. *determining whether projects not strictly "included" in the TIP have been included in the regional emission analysis and that their design concept and scope remain unchanged.*

All projects capable of being modeled have been included in the Conformity Analysis quantitative networks, regardless of funding source or "degree of significance".

- viii. *project sponsor satisfaction of CO and PM10 "hot-spot" analyses.*

The MPO defers to ODOT staff expertise regarding project-level compliance with localized CO conformity requirements and potential mitigation measures which are considered on a project-by-project basis as a part of the environmental assessment. There exist no known PM₁₀ hot spot locations of concern.

- ix. *evaluation of events that will trigger new conformity determinations other than those specifically enumerated in the rule.*

This section is not applicable to the 2004 RTP or MTIP conformity determination.

- x. *evaluation of emissions analysis for transportation activities which cross borders of MPOs or nonattainment or maintenance areas or basins.*

The Portland-Vancouver Interstate Maintenance Area (ozone) boundaries are geographically isolated from all other MPO and nonattainment and maintenance areas and basins. Emissions assumed to originate within the Portland-area (versus the Washington State) component of the Maintenance Area are independently calculated by Metro. The Clark County Regional Transportation Commission (RTC) is the designated MPO for the Washington State portion of the Maintenance area. Metro and RTC coordinate in development of the population, employment and VMT assumptions prepared by Metro for the entire Maintenance Area. RTC is the lead agency for conformity determinations for plans and projects in the Washington State portion of the Maintenance Area.

Conformity of projects occurring outside the Metro boundary but within the Portland-area portion of the Interstate Maintenance Area were assessed by Metro as provided in State regulations. A request was made of each county to forward projects within the Maintenance Area boundary. While several projects were forwarded to Metro from Multnomah County for analysis, none of these projects was considered a regionally significant project. (see Appendix 7) No regionally significant projects outside the urban boundary have been declared to Metro for analysis.

- xi. *disclosure to the MPO of regionally significant projects, or changes to design*

scope and concept of such projects that are not FHWA/FTA projects.

In the process of updating the 2000 RTP and the 2004 RTP, local jurisdictions and regional and state agencies made changes to the projects. These changes will be reflected in the air quality modeling and considered in the conformity determination.

xii. the design schedule and funding of research and data collection efforts and regional transportation model development by the MPO.

This consultation occurs in the course of MPO development and adoption of the annual Unified Planning Work Program.

xiii. development of the TIP.

Development of the MTIP included review by TPAC, which is the designated body for interagency consultation.

xiv. development of RTPs.

Development of the 2004 RTP was directly reviewed by TPAC, which is the standing body for interagency consultation.

xv. establishing appropriate public participation opportunities for project level conformity determinations.

In line with other project-level aspects of conformity determinations, it is most appropriate that project management staff of the state and local operating agencies be responsible for any public involvement activities that may be deemed necessary in making project-level conformity determinations.

- b. **Requirement:** *The State Conformity Regulations require a proactive public involvement process that provides opportunity for public review and comment by providing reasonable public access to technical and policy information considered by the agency at the beginning of the public comment period and prior to taking formal action on the conformity determination for all transportation plans.*

Finding: Appendix 2 contains a timeline that describes key products and opportunities for public comment as part of the 2004 RTP. In addition, development of the MTIP included extensive public review and comment opportunities. Appendix 9 includes comments received from the earlier public comment period from October 31, 2003 through January 13, 2004. Comments received during the February 13, 2004 through February 27, 2004 period will be included in a separate document.

On September 29, 2003 a notice of Metro's intent to update the 2000 RTP and conduct an air quality conformity analysis of the 2004 RTP and 2004-07 MTIP was sent to affected

governments and interested residents, businesses and community groups. This notice summarized the public process and a timeline for adoption of the 2004 RTP, the 2004-07 MTIP and a conformity determination for both plans. On October 31, 2003, a 30-day public comment period began on the draft 2004 RTP air quality conformity analysis procedures and methodologies. Metro's website and transportation hotline also supplied information on the plan update and conformity determination process, including opportunities for public comment. Appendix 6 contains copies of the 45-day kickoff notice and Oregonian notice. In addition, a post card was mailed to approximately 2,500 persons who had asked to be placed on either the RTP or MTIP interested persons mailing list. The post cards were also mailed to representatives of neighborhood organizations and community planning organizations. An email newsletter was also sent out to elected officials and representatives of local, regional and state officials.

Further, on February 13, 2004 a new 14 day public review and comment period was advertised in the Oregonian including notification of a February 26, 2004 public hearing before the Metro Council and a deadline for written comments of February 27, 2004. Table 5 describes the 2004 RTP and 2004-07 MTIP conformity process.

Table 5

2004 Regional Transportation Plan /2004-07 MTIP Conformity Analysis Timeline

September 29, 2003	Notification of 2004 RTP and joint 2004 RTP/2004-07 MTIP air quality conformity process to affected governments, interested citizens, community groups
October 31, 2003	Begin 30-day public comment period on draft 2004 RTP and draft conformity determination document for the 2004 RTP and 2004-07 MTIP
December 4, 2003	Metro Council Public hearing on 2004 RTP, 2004-07 MTIP and draft conformity determination; close of public comment period
December 5, 2003	Review of 2004 RTP and air quality conformity analysis results and tentative action by TPAC
December 11, 2003	Action on 2004 RTP and 2004-2007 MTIP
January 9, 2004	2025 Air quality conformity results completed and announced on web site.
January 13, 2004	Close of public comment period.
January 15, 2004	Air quality conformity approvals by JPACT and Metro Council & transmittal to USDOT on January 16, 2004
February 5, 2004	USDOT requests Report changes and reopening public comment period
February 13, 2004	Revised Report completed and public notice published for additional 14 day public comment period
February 26, 2004	Metro Council public hearing
February 27, 2004	Close of public comment, distribution of all public comments to JPACT and Metro Council
March 1, 2004	JPACT action on revised conformity determination
March 4, 2004	Metro Council action on revised conformity determination

4. Timely Implementation of TCMs (OAR 340-252-0140).

- a. Requirement: *The State Conformity Regulations require MPO assurance that "the transportation plan, [and] TIP... must provide for the timely implementation of TCMs from the applicable implementation plan."*

Finding: See C.1(d), above. Based on this information, it is found that the TCMs are being implemented in a timely fashion.

5. Support Achievement of NAAQS

- a. **Requirement:** The State Implementation Plan (SIP) requires the 2004 RTP and 2004-07 MTIP to support achievement of NAAQS.

Finding:

Several policies and objectives in Section 1.3.4 of the 2004 RTP directly support achievement of National Ambient Air Quality Standards (NAAQS). These objectives are achieved through a variety of measures affecting transportation system design and operation, also described in Chapter 1 of the 2004 RTP. The plan sets forth goals and objectives for road, transit, freight, bicycle, and pedestrian improvements as well as for implementation of system and demand management strategies.

The highway system is functionally classified to ensure a consistent, integrated, regional highway system of principal routes, arterial and collectors. Acceptable level-of-service standards are set for maintaining an efficient flow of traffic. The RTP also identifies regional bicycle and pedestrian systems for accommodation and encouragement of non-vehicular travel. System performance is emphasized in the RTP and priority is established for implementation of transportation system management (TSM) measures.

The transit system is similarly designed in a hierarchical form of regional transitways, radial trunk routes and feeder bus lines. Standards for service accessibility and system performance are set. Park-and-ride lots are emphasized to increase transit use in suburban areas. The RTP also sets forth an aggressive demand management program to reduce the number of automobile and person trips being made during peak travel periods and to help achieve the region's goals of reducing air pollution and conserving energy.

In conclusion, 2004 RTP and the 2004-07 MTIP is in conformance with the SIP in its support for achieving the NAAQS. Moreover, the RTP provides adequate statements of guiding policies and goals with which to determine whether projects not specifically included in the RTP at this time may be found consistent with the RTP in the future. Section 1.3.7 in Chapter 1 of the 2004 RTP identifies key policies that guide the selection

of projects and programs to implement the RTP. Conformity of such projects with the SIP would require interagency consultation.

6. Quantitative Analysis (OAR 340-252-0190)

1. Conduct a Quantitative Analysis

Requirement: *OAR 340-252-0190 requires that a quantitative analysis be conducted as part of the 2004 RTP conformity determination. The analysis must demonstrate that emissions resulting from the entire transportation system, including all regionally significant projects expected within the time frame of the plan, must fall within budgets established in the maintenance plan for criteria pollutants. In the Portland-Vancouver Air Quality Maintenance Area these include ozone precursors (HC and NO_x) and carbon monoxide (CO). A specified methodology must be used to calculate travel demand, distribution and consequent emissions as required by OAR 340-20-1010. The Portland metropolitan area has the capability to perform such a quantitative analysis.*

Finding: For the Oregon portion of the Portland-Vancouver airshed, emission budgets have been set for various sources of pollutants (mobile, point, area) and are included in the SIP and in the region's Ozone and Carbon Monoxide Maintenance Plans. The 2004 RTP and 2004-07 MTIP must conform to the SIP mandated mobile emission budgets. Mobile emission budgets are set for winter carbon monoxide (CO) and for two summer ozone precursors: nitrogen oxides (NO_x), and hydrocarbons (HC).

The region's approved Maintenance Plans identify two sets of analysis years, one set for winter CO and one set for summer ozone precursors (NO_x and HC). The CO budget years are 2007, 2010, 2015 and 2020. The ozone analysis years are 2006, 2010, 2015 and 2020. In addition, a plan horizon year must also be evaluated. For the 2004 RTP, the horizon year is 2025. Table 6 shows the budget years and associated emissions budgets. The 2004-07 MTIP is a subset of the financially constrained system described in the 2004 RTP.

Table 6**2004 RTP/2004-07 MTIP Mobile Emissions Budgets¹**

	Winter CO	Summer HC	Summer NOx
	(thousand pounds/day)	(tons/day)	(tons/day)
2006	<i>n/a</i>	41	51
2007	775	<i>n/a</i>	<i>n/a</i>
2010	772*	40	52
2015	801*	40	55
2020	856*	40	59
2025	856*	40	59

¹ Budgets are from the Maintenance Plan adopted in 1996 except as noted. Year 2025 budget based on Ozone Maintenance Plan emission budget "for years 2020 and beyond".

*Previous air quality conformity determinations have used Carbon Monoxide budgets based on a draft, July 12, 1996 copy of the Maintenance Plan. However, the correct budgets are those in the approved State Implementation Plan published in the September 2, 1997 Federal Register (FR), as cited in the FR in Section 52.1970 (c) (122)(i)(B), which revises the 2010, 2020 and years thereafter as listed in Table 5, above.

Source: Metro

The network that was analyzed is summarized in Appendix 1. The protocol for definition of the Determination's analysis and budget years is summarized in Appendix 3, including discussion of why each analysis year was selected. Appendix 4 contains a summary of the principle model assumptions, including a discussion of assumed transit costs, parking factors, and intersection density and the impact of these factors on travel mode selection by 2040 design type (e.g., central city, regional centers, town centers, station communities, mainstreets, employment areas, corridors, etc.). A detailed description of the network assumptions coded into Metro's regional model is contained in a 2004 RTP Financially Constrained System Atlas, available for review at Metro located at 600 NE Grand Avenue, Portland, OR 97232. The Atlas includes information about system and individual link capacities in the 2000 base year and capacities assumed after planned improvements as well as the year of expected operation of each planned improvement. The results of the quantitative analysis are shown in Table 7 and Figures 1 through 5. In summary, Metro's analysis indicates that, with regard to the established budgets in all budget years (i.e., 2006, 2007, 2010, 2015, 2020 and 2025), that regional emissions meets Federal and State requirements.

2. Determine Analysis Years.

- a. **Requirement:** *The State Conformity Regulations) require the first analysis year to be no later than 10 years from the base year used to validate the transportation demand planning model (340-252-0070), that subsequent analysis years be no greater than 10 years apart and that the last year of the 2004 RTP must be an analysis year (340-252-0070).*

Finding: See Appendix 3 regarding selection of analysis and budget years, including discussion of why each analysis year was selected.

3. Perform the Emissions Impact Analysis.

- a. **Requirement:** *The State Conformity Regulations) require Metro to conduct the emissions impact analysis.*

Finding: Calculations were prepared, pursuant to the methods specified at OAR 340-20-1010, of CO and Ozone precursor pollutant emissions assuming travel in each analysis year on networks that have been previously described. A technical summary of the regional travel demand model, the EMME/2 planning software and the Mobile 5a-h methodologies is available from Metro upon request. The methodologies were reviewed by TPAC.

4. Determine Conformity.

- a. **Requirement:** *Emissions in each analysis year must be consistent with (i.e., must not exceed) the budgets established in the maintenance plan for the appropriate criteria pollutants (OAR 340-252-0190).*

Finding: Metro's analysis indicates that regional emissions will remain within established budgets in all budget years

- Carbon Monoxide - 2007, 2010, 2015, 2020 and 2025
- Ozone - 2006, 2010, 2015, 2020 and 2025
- Nitrogen Oxides - 2006, 2010, 2015, 2020 and 2025

Table 7 provides a summary of these emissions and shows that the 2004 RTP and 2004-07 MTIP, conform with the SIP.

Table 7
2004 RTP/2004-07 MTIP Conformity Results¹

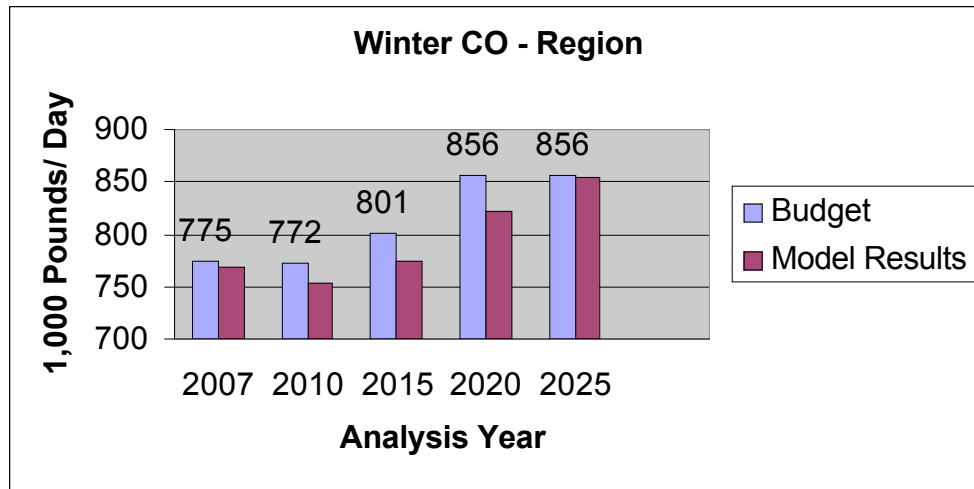
	Winter CO		Summer HC		Summer NOx	
	(thousand pounds/day)		(tons/day)		(tons/day)	
	<i>Budget</i>	<i>Model Result</i>	<i>Budget</i>	<i>Model Result</i>	<i>Budget</i>	<i>Model Result</i>
2006	<i>n/a</i>	<i>n/a</i>	41	39.4	51	46.1
2007	775	769.0	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
2010	772*	752.6	40	36.4	52	42.2
2015	801*	774.5	40	34.7	55	38.0
2020	856*	822.2	40	37.3	59	37.1
2025	856	854.4	40	37.2	59	41.3

¹ Budgets are from the Maintenance Plan adopted in 1996. Year 2025 budget should be adjusted based on emission budget input factors.
 *Previous air quality conformity determinations have used Carbon Monoxide budgets based on a draft, July 12, 1996 copy of the Maintenance Plan. However, the correct budgets are those in the approved State Implementation Plan published in the September 2, 1997 Federal Register (FR), as cited in the FR in Section 52.1970 (c) (122)(i)(B), which revises the 2010, 2020 and years thereafter as listed in Table 7, above.

Source: Metro

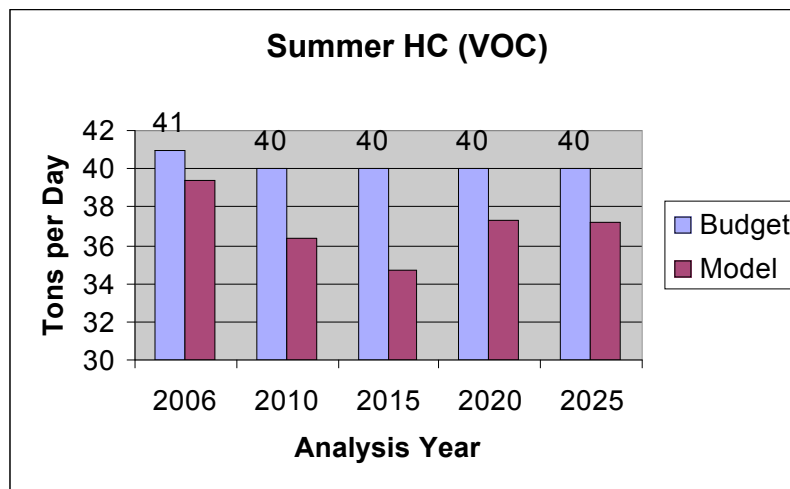
Figures 1, 2 and 3 show graphs of the conformity results that compare the emissions budgets with the modeled results for each analysis year for winter carbon monoxide (CO) and for two summer ozone precursors: nitrogen oxides (NOx), and hydrocarbons (HC) respectively. Figures 4 and 5 show graphs of the conformity results that compare the emissions budgets with the modeled results for each analysis year for winter carbon monoxide (CO) in the Portland central city subarea and 82nd Avenue subarea.

Figure 1



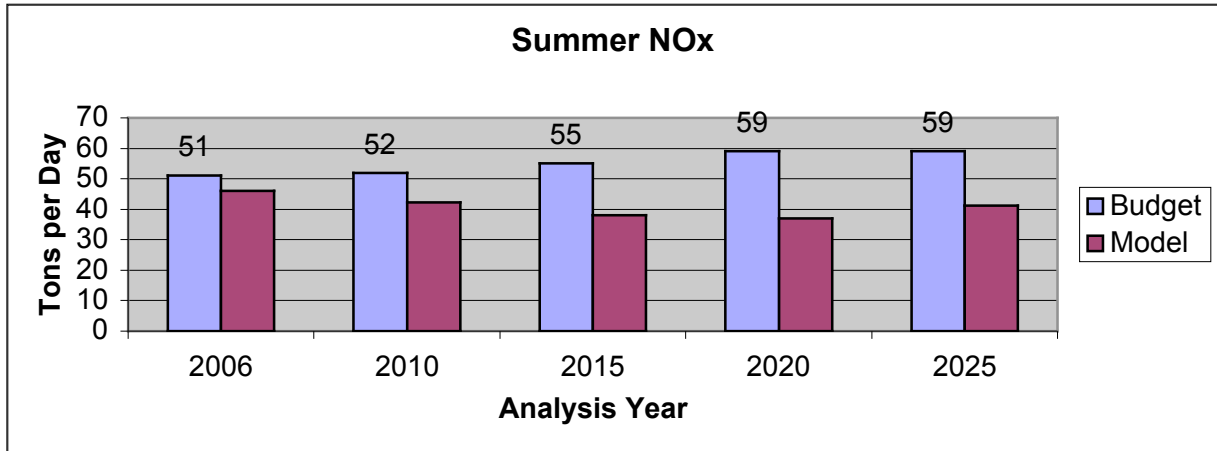
Based on RTP Financially Constrained System and 2004-07 MTIP
Source: Metro

Figure 2



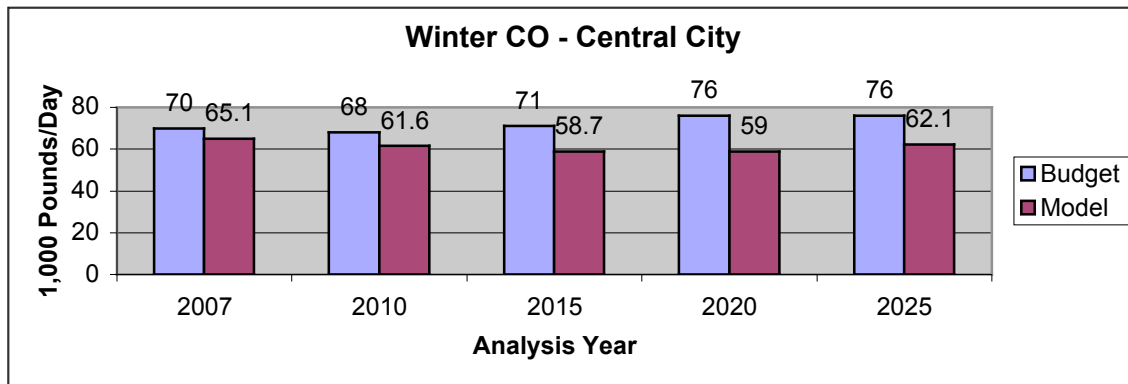
Based on RTP Financially Constrained System and 2004-07 MTIP
Source: Metro

Figure 3



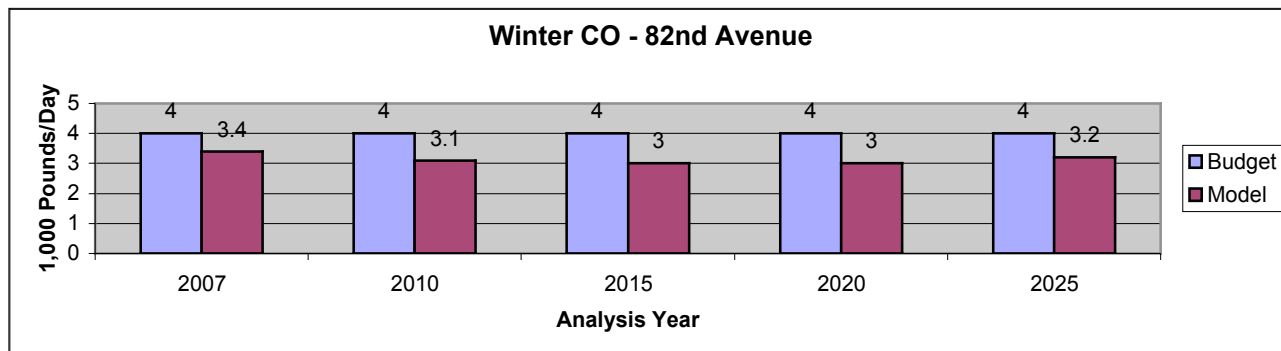
Based on RTP Financially Constrained System and 2004-07 MTIP
Source: Metro

Figure 4



Based on RTP Financially Constrained System and 2004-07 MTIP.
Source: Metro

Figure 5



Based on RTP Financially Constrained System and 2004-07 MTIP
Source: Metro

Seasonal Adjustments

The emission results that are compared with the budgets are computed with the use of MOBILE5a-h. After the raw emission totals are calculated several revisions are made to arrive at a final result reported above. The raw emission total comes from a number derived from the Metro Transportation Model that is set for transportation conditions in May of the desired year. However, the Carbon Monoxide emissions are of most concern in the winter. The precursors of ozone pollution, HC and Nox, are of most concern in the summer. Accordingly, adjustments are made to the raw numbers to account for transportation conditions for the needed season. That is, a seasonal adjustment is made for the CO emissions to reflect fewer trips in winter as compared with May and for HC and NOx for more trips in summer than occur in May. The seasonal adjustment also changes the travel model output from emissions per Average Weekday (a 5 day average) to emissions per Average Day (a 7 day average that includes weekends). These adjustments are illustrated for the years 2010, 2015 and 2025 in tables 8, 9 and 10, below.

Emission Credits

The above results also include the use of credits. That is, there are some measures that are being implemented or which will be implemented in the future which are expected to decrease air quality emissions from mobile sources. As specified in OAR 340-252-0230, credits may be used to reduce the estimated amount of pollution from mobile sources. The following tables show the unadjusted MOBILE5a-h results as well as the adjustments made for each credit and the final adjusted numbers for the years 2010, 2015 and 2025. Metro is using two credits, one for Tier 2 emission controls and a second for ECO rule benefits. As can be seen, the largest credit is the Tier 2 credit, especially in later years.

Table 7
Metro RTP 2010 Financially Constrained System
Forecast Conformity Emissions, Credits and Adjustments

	Metro Winter CO	Credit as % of Raw Total	Central City Winter CO	82nd Avenue Winter CO	HC	Credit as % of Raw Total	AQMA Nox	Credit as % of Raw Total
Raw Total	878.7		71.9	3.7	41.1		58.6	
Seasonal Adjustment	-114.8	n/a	-9.3	-0.5	1.1	n/a	1.3	n/a
Adjusted Total	764.5		62.6	3.2	39.2		57.3	
Credits								
Tier 2	0	0%	0	0	-2.8	-7%	-14.7	-25%
ECO	-11.9	-1%	-0.9	-0.0	-0.8	-2%	-0.4	-1%
Emissions with Credits	752.5		61.7	3.2	36.4		44.5	
Budget	772		68	4	40		52	

Includes: Seasonal Adjustments, ECO Rule Credits, and Tier 2 Adjustments to NOx and VOC.
Seasonal adjustments provide appropriate time of year calibration to forecast emission forecasts and are not a credit.

Table 8
Metro RTP 2015 Financially Constrained System
Forecast Conformity Emissions, Credits and Adjustments

	Metro Winter CO	Credit as % of Raw Total	Central City CO	82nd Avenue CO	HC	Credit as % of Raw Total	AQMA Nox	Credit as % of Raw Total
Raw Total	905.3		68.6	3.5	40.4		60.3	
Seasonal Adjustments	-117.7	n/a	- 8.9	-0.5	1.1	n/a	1.2	n/a
Adjusted Total	787.6		59.7	3.0	39.3		59.1	
Credits								
Tier 2	0		0	0	-3.8	-9%	-20.7	-34%
ECO	-13.1	-5%	-1.0	-0.0	-0.8	-2%	-0.4	-1%
Adjusted Model	774.5		58.7	3.0	34.7		38.0	
Budget	772		71	4	40		55	

Includes: Seasonal Adjustments, ECO Rule Credits, and Tier 2 Adjustments to NOx and VOC. Seasonal adjustments provide appropriate time of year calibration to forecast emission forecasts and are not a credit.

Table 9
Metro RTP 2025 Financially Constrained System
Forecast Conformity Emissions, Credits and Adjustments

	Metro CO	Credit as % of Raw Total	Central City CO	82nd Avenue CO	HC	Credit as % of Raw Total	AQMA Nox	Credit as % of Raw Total
Raw Total	1000.5		72.7	3.7	44.3		66.8	
Seasonal Adjustments	-130.1	n/a	- 9.5	-0.5	-1.2	n/a	-1.3	n/a
Adjusted Total	870.4		63.2	3.2	43.1		65.5	
Credits								
Tier 2	0		0	0	-4.9	-11%	-23.7	-35%
ECO	-16.0	-2%	-1.2	-0.1	-1.0	-2%	-0.5	-1%
Adjusted Model	854.4		62.1	3.2	37.2		41.3	
Budget	856		76	4	40		59	

Includes: Seasonal Adjustments, ECO Rule Credits, and Tier 2 Adjustments to NOx and VOC. Seasonal adjustments provide appropriate time of year calibration to forecast emission forecasts and are not a credit.

Tier 2 Emission Credit

The EPA final rule on Tier 2 Motor Vehicle Emissions Standards and Gasoline Sulfur Control Requirements ("Tier 2 standards") for passenger cars, light trucks, and larger passenger vehicles was published on February 10, 2000 (65 FR 6698). The program is designed to focus on reducing the emissions most responsible for the ozone and particulate matter (PM) impact from these vehicles -- nitrogen oxides (NOx) and non-methane organic gases (NMOG), consisting primarily of hydrocarbons (HC) and contributing to ambient volatile organic compounds (VOC).

The program also applies the same set of federal standards to all passenger cars, light trucks, and medium-duty passenger vehicles. Light trucks include "light light-duty trucks" (or LLDTs), rated at less than 6000 pounds gross vehicle weight and "heavy light-duty trucks" (or HLDTs), rated at more than 6000 pounds gross vehicle weight). "Medium-duty passenger vehicles" (or MDPVs) form a new class of vehicles introduced by this rule that includes SUVs and passenger vans rated at between 8,500 and 10,000 GVWR. The program thus ensures that essentially all vehicles designed for passenger use in the future will be clean vehicles.

The air quality modeling software, MOBILE5a and MOBILE5b were released in 1993 and 1996, respectively, before the Tier 2 rules were proposed. As a result, MOBILE5a and MOBILE5b did not address the effects of Tier 2 exhaust and evaporative emission certification requirements on emissions for motor vehicles starting in 2004. These effects will be addressed in the MOBILE6 on-road emissions model, planned to be used for the Metro area in the future and being tested for use in the Metro area currently. However, for this air quality conformity determination, MOBILE5 is being used and as noted, does not account for these changes in emissions.

EPA has approved a method of including Tier 2 effects in calculating air quality impacts while using MOBILE5. This air quality conformity determination uses the MOBILE5a-h emission model and applies Tier 2 emission rate adjustments consistent with the *MOBILE5 Information Sheet #2, Tier 2 Benefits Using MOBILE5*, as published by the EPA April 2000. The Tier 2 adjustments were provided for emission rates

at 24.6 miles per hour. Metro determined the percentage change the Tier 2 adjustments made to the original emission at 24.6 miles per hour. The resulting percentage change was then applied to all emission rates for other speeds. The results of this credit are shown on the tables above.

ECO Rule Credit

One of the Transportation Control Measures included in the Ozone Maintenance Plan is the ECO, or Employee Commute Option rule. This rule states that a 10 percent trip reduction is required for employers who employ more than 50 employees at the same work site. As noted in section C 1. d. of this report, the ECO rule is being implemented in the region by DEQ as well as TriMet. As noted in the findings of the *2002 Regional Transportation Demand Management Program Evaluation Report, Metro, April 2003*) which calculates the air quality benefits of the ECO rule (see page 17 of the report), the ECO Rule has direct air quality benefits and these have been calculated on the basis of actual progress on this TCM. According to the *2002 Regional Transportation Demand Management Program Evaluation Report*, the auto-trip reduction number translates to a reduction of 852,014 vehicle-miles traveled per workweek, which, in turn, leads to reduction in the following air pollutants:

Hydrocarbons 6,276 lbs.

Nitrogen oxides 3,233 lbs.

Carbon monoxide 48,496 lbs.

Carbon dioxide 852,014 lbs.

These air quality benefits were directly credited against the forecasts of air quality emissions of the air quality model.



Appendices

**Not available
electronically.**



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